Remarks:

Regarding the Information Disclosure Statements:
Applicants filed a first Information Disclosure Statement (IDS) on July 20, 2005 citing eight references and including foreign patent documents AU 656228 and AU 647669. Applicants erroneously submitted printouts from the esp@cenet.com website of the Abstracts for the two foreign documents which failed to include English language of the Abstracts. Applicants submit, herewith, a Supplemental IDS reciting foreign patent documents AU 656228 and AU 647669 and including full disclosures for these two foreign documents. Applicants respectfully request the references cited in the Supplemental IDS be considered by the Examiner.

Regarding the rejection of claims 1-21 under 35 USC 103(a) as allegedly being unpatentable over U.S. Patent No. 5,498,277 to Floyd et al. (hereinafter "Floyd") in view of U.S. Patent No. 4,968,661 to Teller et al. (hereinafter "Teller"):
Applicants respectfully traverse the rejection of the foregoing claims in view of Floyd and Teller.

Prior to discussing the merits of the Examiner's position, the undersigned reminds the Examiner that the determination of obviousness under § 103(a) requires consideration of the factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1 [148 USPQ 459] (1966): (1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the pertinent art; and (4) secondary considerations, if any, of nonobviousness. *McNeil-PPC, Inc. v. L. Perrigo Co.*, 337 F.3d 1362, 1368, 67 USPQ2d 1649, 1653 (Fed. Cir. 2003). There must be some suggestion, teaching, or motivation arising from what the prior art would have taught a person of ordinary skill in the field of the invention to make the proposed changes to the reference. *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988). But see also *KSR International Co. v. Teleflex Inc.*, 82 USPQ2D 1385 (U.S. 2007).

A methodology for the analysis of obviousness was set out in *In re Kotzab*, 217 F.3d 1365, 1369-70, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000) A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher."

It must also be shown that one having ordinary skill in the art would reasonably have expected any proposed changes to a prior art reference would have been successful. *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 1207, 18 USPQ2d 1016, 1022 (Fed. Cir. 1991); In re O'Farrell, 853 F.2d 894, 903-04, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988); *In re Clinton*, 527 F.2d 1226, 1228, 188 USPQ 365, 367 (CCPA 1976). "Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure." *In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988).

The Patent Office acknowledges that Floyd does not disclose that the oxygen to fuel/reductant stoichiometry is in excess of 60 wt% (see page 4 of the Office Action). The Patent Office introduces Teller as allegedly disclosing that (1) the amount of excess oxygen added in a combustion reaction depends on, among other factors, the type of fuel being used and (2) solid fuels, in particular, may require oxygen in excess of more than 50%. The Patent Office alleges that it would be obvious to one of ordinary skill in the art at the time of the invention to optimize the amount of excess oxygen needed, as evidenced by Teller, in the combustion reaction of Floyd in order to conserve fuel, lower costs, and/or increase the efficacy of the smelting process.

Neither Floyd nor Teller, taken singly or in combination, teaches or suggests that the controlling of step (c) is conducted to result in the injected oxygen-containing gas having an oxygen content of from about 40 volume% to about 100 volume% and sufficient for a degree of combustion in excess of 60 wt% of the fuel/reductant injected by the at least one lance as required in claim 1.

Instead, Floyd teaches away from conducting the controlling of step (c) according to claim 1 because Floyd expressly teaches an oxygen content sufficient for a degree of combustion of the fuel/reductant of from 40wt% to 50wt% (see the Abstract, Examples 1 and 2 and col. 2, lines 13-17 of Floyd). In other words, a degree of combustion in excess of 60 wt% is unachievable in view of Floyd and is also contrary to the express teachings of Floyd.

With respect to the Patent Office's allegation that Teller teaches that the amount of excess oxygen added in a combustion reaction depends on among other factors, the type of fuel being used, Applicants submit that the teachings of Teller are not relevant to the present invention or to the express requirements of claim 1. In the process of present claim 1, there is no excess oxygen added. To the contrary, the oxygen to fuel/reductant stoichiometry of claim 1 is such that there is less oxygen than is required for complete combustion of the fuel/reductant (even though the degree of combustion is in excess of 60% of the fuel/reductant injected by the at least one lance). Present claim 3 illustrates that the oxygen to fuel/reductant stoichiometry of claim 1 is such that there is less oxygen than is required for complete combustion of the fuel/reductant by further requiring a degree of combustion of from 65wt% to 90wt% of the fuel/reductant.

As indicated in step (a) of claim 1, the injection of the fuel/reductant and oxygen containing gas via at least one top-submerged lance is to generate heating and reducing conditions in at least one reducing region in the bath. The heating is generated by combustion of the fuel component of the fuel/reductant and at least one reducing region

which results from the injected reductant component of the fuel/reductant (see page 4, lines 12 to 20 of the present application).

Floyd teaches an oxygen content of the oxygen-containing gas which results in a combustion degree of from 40wt% to 50wt% of the fuel/reductant. In other words, 40 to 50wt% of the fuel/reductant is combusted as fuel, leaving from 50 to 60wt% of the fuel/reductant uncombusted and available as reductant. Thus, Floyd teaches that the oxygen to fuel/reductant stoichiometry is such that there necessarily is an excess of fuel/reductant relative to oxygen, not an excess of oxygen as taught by Teller.

These same factors apply to present claim 1, except that in excess of 60wt% of the fuel/reductant is combusted as fuel, but with a quantity of fuel/reductant remaining as reductant, and that quantity being less than 40wt% of the fuel/reductant. Therefore, claim 1 also includes an excess of fuel/reductant relative to oxygen, and not an excess of oxygen as taught by Teller.

Additionally, the teachings of Teller are remote with respect to the subject matter of the present disclosure. For example, Teller only mentions complete combustion in the background discussion, whereas the invention disclosed in Teller is strictly related to only the composition of the catalyst. At best, the background of Teller appears to relate to a catalyst assisting in the complete combustion of materials which are difficult to oxidize in normal open air burner systems. Nowhere does Teller teach the effect of combustion in other processes, such as an oxygen deficient application of iron making or the like.

Further, the teachings of Teller are merely directed to (1) oxidation catalysts which facilitate the complete disposal of organic wastes by complete or stoichiometric combustion. Still further, the teachings of Teller are directed to complete combustion of the waste to carbon dioxide, in which a real excess of oxygen above requirements for complete or stoichiometric combustion can be tolerated (see col. 1, lines 24 to 62 of

Teller). However, even then, Teller teaches (1) use of oxygen in an amount equal to or slightly in excess of the stoichiometric amount (col. 9, lines 8 to 16 of Teller) and (2) that sub-stoichiometric amounts of oxygen, with the resultant uncombusted waste destroyed by pyrolysis (see col. 10, line 59 - col. 11, line 16 of Teller).

The context of the present disclosure is quite different to the context of Teller. In the present disclosure, the fuel/reductant is injected to generate at least one reducing region in the bath, thereby providing slag conditions in which iron-containing oxidic source material is smelted to produce iron metal. The context of the present application does not permit there to be excess oxygen, as this would deplete the reductant and impede or prevent the smelting reactions.

Contrary to the allegations by the Patent Office, it would not have been obvious to one of ordinary skill in the art at the time of the invention to optimize the amount of excess oxygen needed, as evidenced in Teller, in the combustion reaction of Floyd. As detailed above, neither Floyd nor the present disclosure utilizes an amount of excess oxygen, and an excess of oxygen relative to the oxygen to fuel/reductant stoichiometry would be highly deleterious to the process of the producing iron metal and slag by smelting iron-containing source material. The present disclosure and process of claim 1 provides an increased cost-effectiveness (see page 6, lines 13-21 of the present application) in view of Floyd as a result of changing from a fuel/reductant combustion degree of 40wt% to 50wt% as in Floyd to in excess of 60wt% (such as from 65wt% to 90wt%) as in the present claims. As detailed in the present application, in its consideration of Floyd, corresponding to AU656228, the process of claim 1 is a non-obvious departure from Floyd and is contrary to thermodynamic consideration and industrial practice. (see page 1, lines 26 - page 4, line 29 of the present application).

Thus, neither Floyd nor Teller, taken singly or in combination, teaches or suggests that the controlling of step (c) is conducted to result in the injected oxygen-containing gas having an oxygen content of from about 40 volume% to about 100 volume% and

sufficient for a degree of combustion in excess of 60 wt% of the fuel/reductant injected by the at least one lance as required in claim 1.

In view of the foregoing remarks, the Applicants disagree with the Patent Office's position and traverse the Patent Office's rejection, and assert that the Patent Office has not met the proper burden of proof to present and maintain the rejection; such are simply unsupported by the facts for the reasons noted above. Rather Applicants contend that the Examiner's grounds of rejection is at, at best, a hindsight reconstruction, using Applicants' claims as a template to reconstruct the invention by picking and choosing amongst isolated disclosures from the prior art. This is impermissible under the law. Accordingly, reconsideration of the propriety of the rejection of claims 1-21 and its withdrawal is respectfully requested.

In view of the foregoing remarks, reconsideration of the rejections raised by the Patent Office is respectfully requested, and early issuance of a *Notice of Allowance* is solicited. Should the Patent Office in charge of this application believe that telephonic communication with the undersigned representative would meaningfully advance the prosecution of this application towards allowance, the Patent Office is invited to contact the undersigned at their earliest convenience.

CONDITIONAL AUTHORIZATION FOR FEES

Should any further fee be required by the Commissioner in order to permit the timely entry of this paper, the Commissioner is authorized to charge any such fee to Deposit Account No. 14-1263.

Respectfully Submitted;

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CERTIFICATE OF TELEFAX TRANSMISSION UNDER 37 CFR 1.8

I certify that this document, and any attachments thereto, addressed to the: "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" is being telefax transmitted to (571) 273-8300 at the United States Patent and Trademark Office.

Allyson Ross 29 Oct. 2008

Allyson Ross Date

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